ONKYO SERVICE MANUAL

Ref. No. 3400

STEREO CASSETTE TAPE DECK MODEL K-05W

UD, UDN, UDC	120V AC, 60Hz
UP	230V AC, 50Hz
UW	120V or 220V AC, 50/60Hz
UQA	240V AC, 50Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PARTS NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

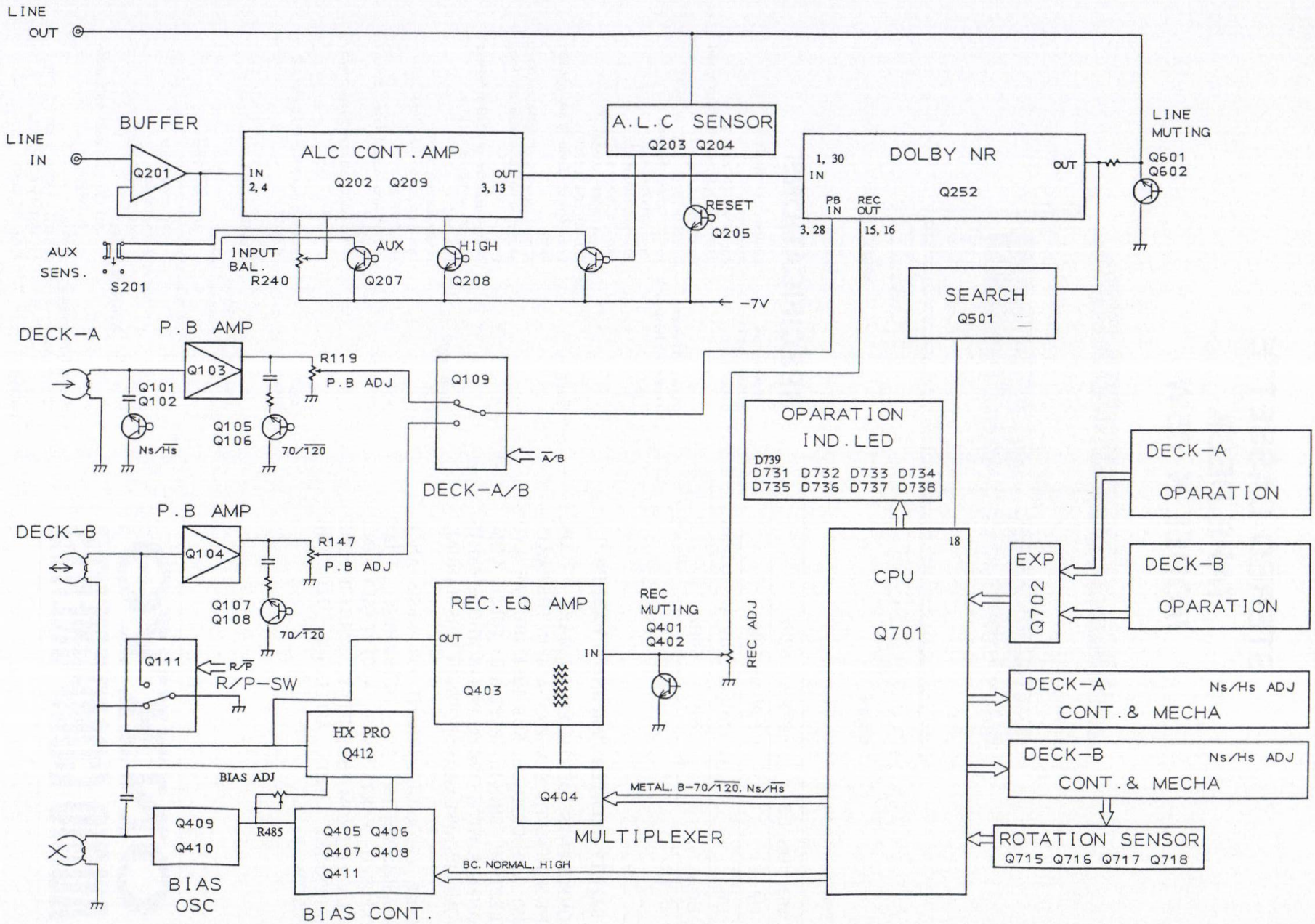
MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

ONKYO®
AUDIO COMPONENTS

SPECIFICATIONS

Track System:	4-tracks, 2-channels
Erasing System:	AC erase
Tape Speed:	4.8 cm/sec. (1-7/8 i.p.s.) 9.6 cm/sec. (3-3/4 i.p.s.) (high speed dubbing)
Wow and Flutter:	0.07% (WRMS) 0.15%W PEAK
Frequency Response:	20 – 15,000Hz (Normal) (30 – 14,000Hz ±3dB) 20 – 16,000Hz (High) (30 – 15,000Hz ±3dB) 20 – 17,000Hz (Metal) (30 – 16,000Hz ±3dB)
S/N Ratio:	Dolby NR off: 58dB (metal position tape) A noise reduction of 10dB above 5kHz and 5dB at 1kHz is possible with Dolby B NR. A noise reduction of 20dB at 5kHz is possible with Dolby C NR.
Input Jacks:	Line IN: 2 Input sensitivity: 80mV Input impedance: 50 kohms
Outputs:	Line OUT: 2 Standard output level: 500mV (0dB) Optimum load impedance: over 50 kohms
Motors:	DC servo motor x 2; DC motor x 2
Heads:	REC/PB:1 PB: 1 ERASE: 1
Power Supply Rating:	
European models:	AC 230V, 50Hz
U.S.A. and Canadian models:	AC 120V, 60Hz
U.K. and Australian models:	AC 240V, 50Hz
Worldwide models:	AC 120V and 220V switchable, 50/60Hz
Power Consumption:	30watts
Dimensions:	275 (W) x 113 (H) x 304 (D) mm (10-13/16" x 4-7/16" x 12")
Weight:	4.7kg. (10.4lbs.)

BLOCK DIAGRAM



OPERATION DESCRIPTION

1) OUTLINE

As a mechanism applied to the present unit, a capstan motor is used to move the head vertically by its turning effect.
The unit consists of a capstan motor, a reel motor and a solenoid. The operation is categorized into FWD PLAY, REV-PLAY, FWD-SEARCH, REV-SEARCH and STOP which are to be selected cyclically by the rotation of the intermittent gear.
To switch operation to respective modes, turn on and off the rotation control of the capstan motor and the solenoid.
Under such a mechanism, the head is kept at PLAY position by means of continuous suction of the said solenoid, and therefore, then turned off the current to the solenoid, the head will be set back to STOP position by the turning effect of the capstan. Consequently, the initialization for the mechanism while the current is alive, can be set back to STOP by just turning the capstan motor for certain time without sucking solenoid whichever the procedure might be.
As for the FF/REV operation, the reel motor will be rotated at high speed at STOP position.

2) T1 MECHANISM

Mechanical construction is the same for both T1 and T2, while the controlling circuit situated at the top of the mechanism differs from each other. Care shall be taken furthermore, because of the difference in some part of the signal logic.
Particularly, T1 mechanism shows considerable difference from the other one in the function which detects the stoppage of the reel support and then outputs tape-end information. This works by the dètection on the brash nose caused by the rotating motor; the said tape-end information will be output 1.5 sec. after stopped the noise in spite of the voltage applied to the reel motor.

3) ALC. CONTROL (HD614089SC47 PIN 14, 15)

Connecting position for the input selector of the amplifier, the recording gain in accordance with the source, will be controlled by this function and, if switched-over the amplifier selector when the deck starts recording or while recording, "selector connecting in information" is to be sent from the said amplifier and to be decoded in order to output the control signal to respective terminals for ALC, AUX, ALC and CD. However, such a signal will not be accepted, though input these signals, if not set REC. MUTE to prevent the noise generated by change-over from being recorded (AUTO SPACE, REC/PAUSE).

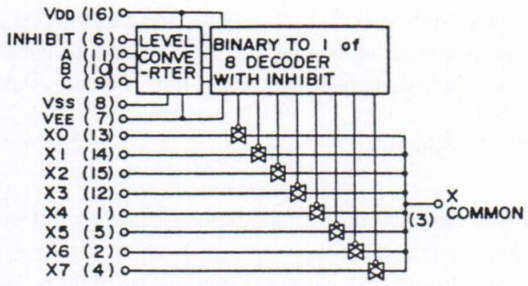
Receiving Code	Output	
	ALC.CD	ALC.AUX
ALCL ($D2F) TUNER	0	0
ALCM ($D2B) AUX	0	1
ALCH ($D2E) CD	1	0

4) FT MODE (TEST MODE)

1. Test Mode will be alive when inserted power-source plug with NCAR-4084-adopted FT Terminal connected to GND.
2. To check Fade-out operation under Test Mode.
   Input the voltage of 2 — 3V at 1 kHz to LINE IN.
   Connect oscilloscope to LINE OUT.
   Press STOP key of T-2 without setting a cassette tape.
   To be judged as normal when lighting all the LED and changing the wave of the said oscilloscope from larger to smaller.
3. To check REC/PLAYBACK level under Test Mode
   Input 10 kHz (–20dB) to LINE IN.
   Connect oscilloscope to LINE OUT.
   Attach a cassette tape to T-2
   When pressed AUTO SPACE key, recording will be started automatically (for 40 sec. at most).
   When pressed AUTO SPACE key repeatedly, the tape will be rewound back to the recording start point and then replayed. Check the vibration of the oscilloscope to be identical both in recording and replaying.
4. To check High Speed under Test Mode
   When pressed the PLAY key in the same direction as that for replay while replaying, the tape speed will be increased to high speed. And if pressed the same key while running at high speed, the speed will be set back to normal one.

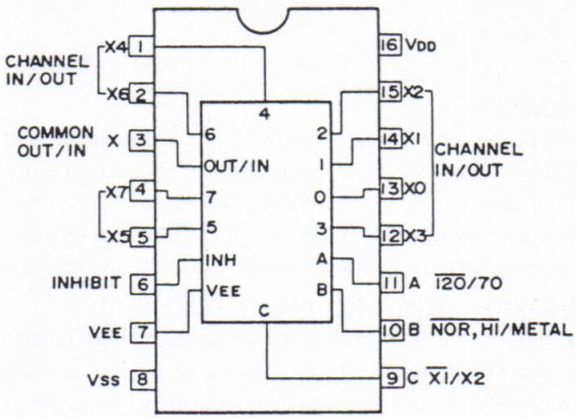
IC BLOCK DIAGRAM

TC4051 (ANALOG SW)

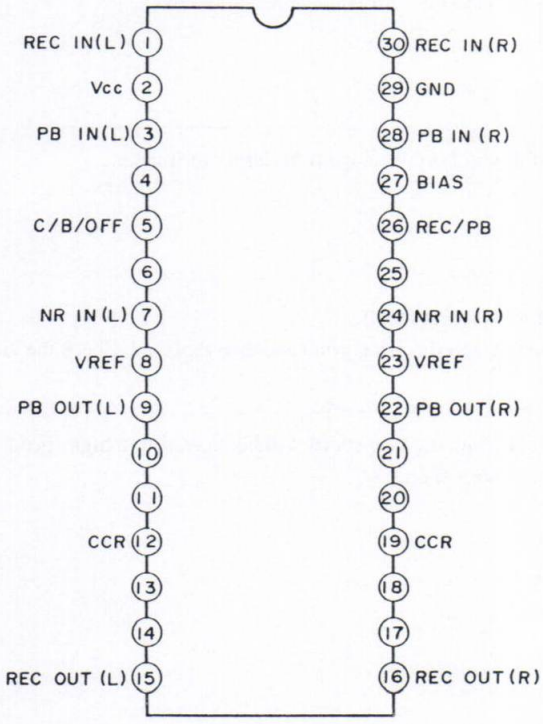


INHIBIT	A(11)	B(10)	C(9)	ON SWITCH
L	L	L	L	XO (13)
L	H	L	L	X1 (14)
L	L	H	L	X2 (15)
L	H	H	L	X3 (12)
L	L	L	H	X4 (1)
L	H	L	H	X5 (5)
L	L	H	H	X6 (2)
L	H	H	H	X7 (4)
H	X	X	X	NONE

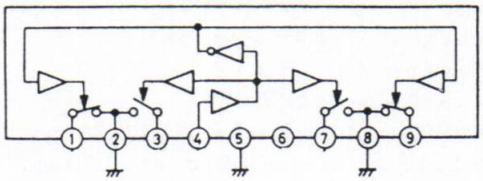
X: Don't Care



HA12142NT (DOLBY NR)



μPC1330HA (REC/PB SW)

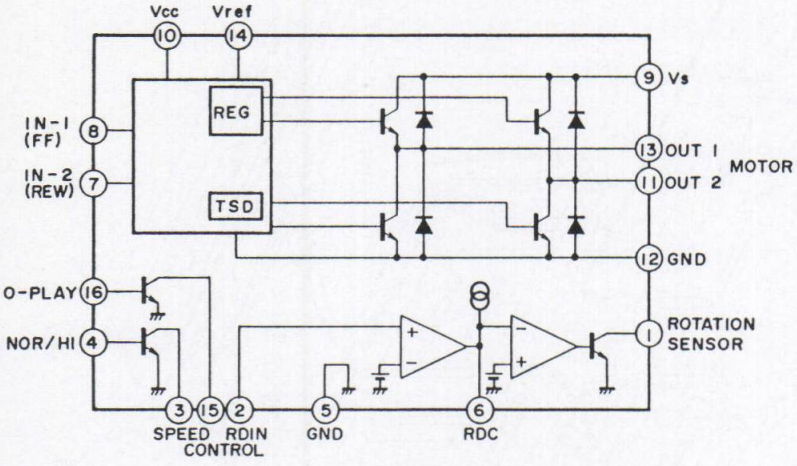


μPC133HA

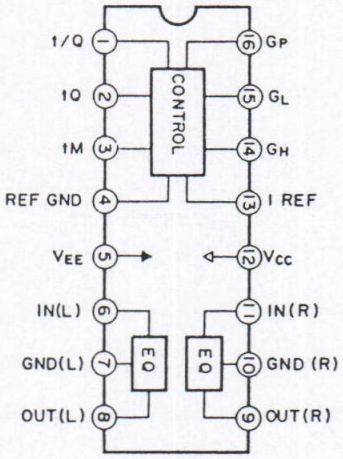
Pin No.	Function
1, 9	PB. signal
2	GND
3, 7	REC signal
4	REC/PB SW control
5	GND
6	+B
8	GND

IC BLOCK DIAGRAM

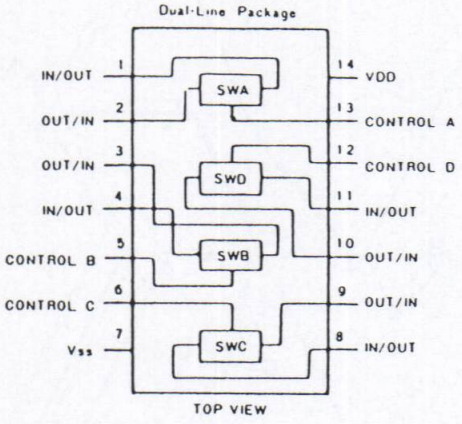
TB6501P (MOTOR DRIVE, AUTOSTOP)



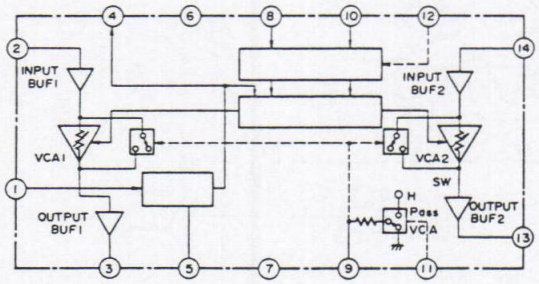
CXA1198A (REC EQ)



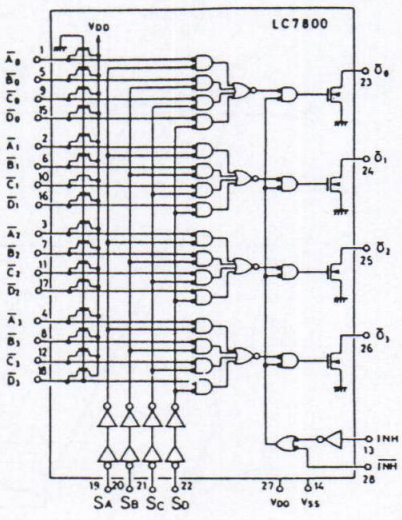
4066BP (ANALOG SW)



M51131L (AUTO LEVEL CONTROL)



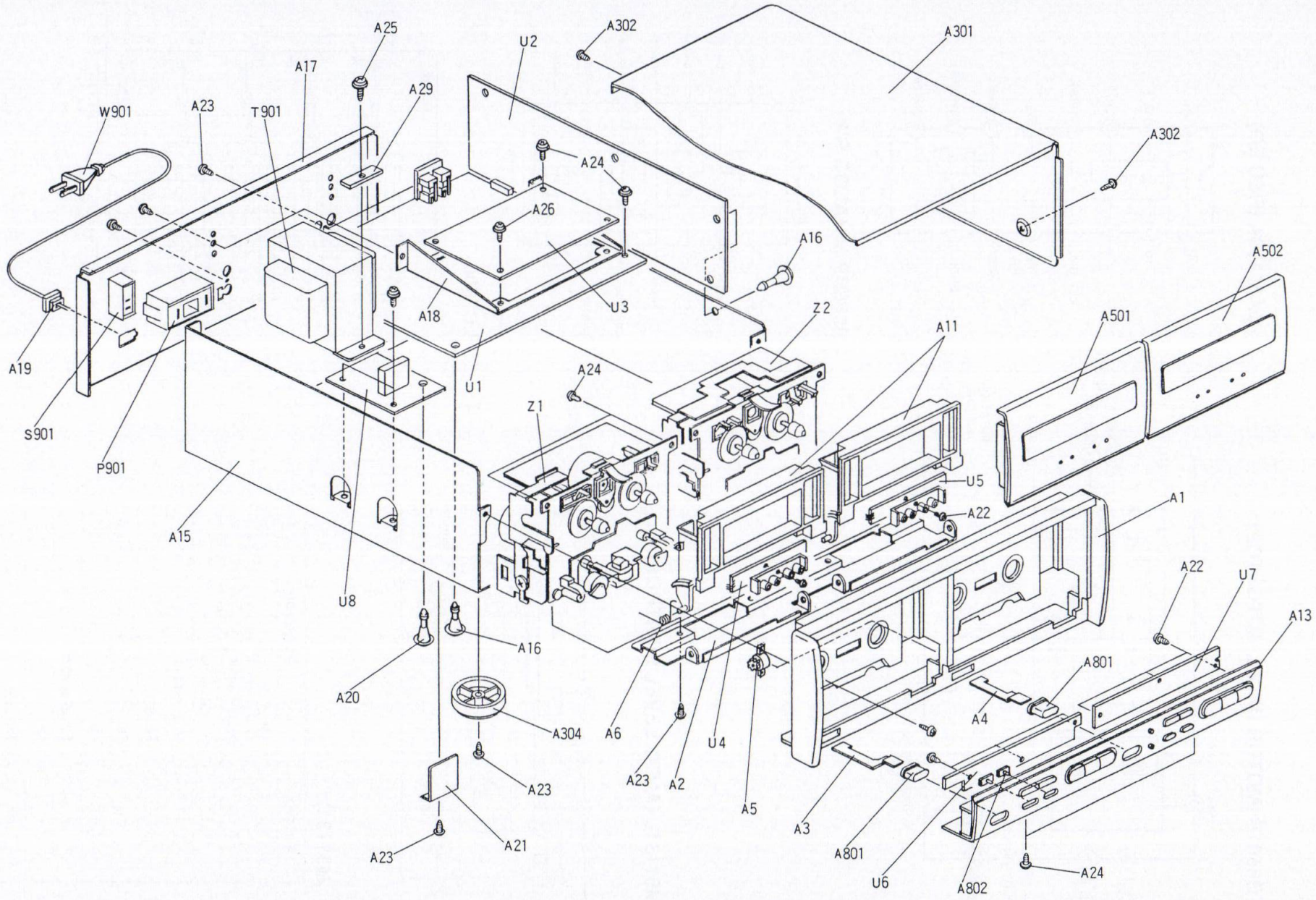
LC7800



M51131L

Pin No.	Function
1	+B
2, 14	Signal input
3, 13	Signal output
4, 12	REF. output
5	Filter
6	NC
7, 11	–B
8	Level control
9	NC
10	Balance

CHASSIS-EXPLODED VIEW



CHASSIS-EXPLODED VIEW – PARTS LIST

REF.NO.	PARTS NO.	DESCRIPTION
A1	27110610-1	FRONT BRACKET AS (S)
	27110610B	FRONT BRACKET AS (B)
A2	27130644A	BRACKET (F)
A3	27141444A	BRACKET (T1)
A4	27141445A	BRACKET (T2)
A5	28400282	DAMPER
A6	27180333-1	SPRING (T2)
A11	28400556D	FRAME AS (CASSETTE) T2
-a	28400554D	FRAME (CASSETTE) T2
-b	27180435	SPRING
A13	28324404	KNOB AS (OP) (S)
	28324405	KNOB AS (OP) (B)
A15	27100229A	CHASSIS
A16	27190266	HOLDER
A17	27121471	BACK PANEL (D)
A17	27121472	BACK PANEL (P)
A17	27121473	BACK PANEL (W)
A17	27121474	BACK PANEL (Q)
A18	27130645	BRACKET (PC)
A19	27300750	BUSHING (CORD)
A20	27190657	HOLDER
A21	27141339	BRACKET (SLD)
A22	833426080	TAP-TIGHT SCREW 2.6TTP+8P
A23	834430088	TAP-TIGHT SCREW 3TTS+8B(BC)
A24	833430080	TAP-TIGHT SCREW 3TTP+8P(BC)
A25	830440089	TAP-TIGHT SCREW 4TTC+8C(BC)
A26	831130088	TAP-TIGHT SCREW 3TTW+8B
A28	260217	BINDER
A29	870065	PT WASHER
A301	28184498-1	TOP COVER (S)
	28184498	TOP COVER (B)
A302	838430088	TAP-TIGHT SCREW 3TTB+8B(BC)
A304	27175253-1Y	LEG
A501	28400620-1A	CASSETTE LID AS (T1) (S)
-a	28400617-1	CASSETTE LID (T1) (S)
-b	28400619A	CASSETTE LID (S)
-c	28191578-1	CLEAR PLATE (S)
-d	28194344-1	COSMETIC BAR (S)
-e	28198752-1	FACET (ST1) (S)
-f	28140860	RUBBER CUSHION (S)
A501	28400702	CASSETTE LID AS (T1) (B)
-a	28400705	CASSETTE LID (T1) (B)
-b	28400619A	CASSETTE LID (B)
-c	28191578	CLEAR PLATE (B)
-d	28194344	COSMETIC BAR (B)
-e	28198752-1	FACET (ST1) (B)
-f	28140860	RUBBER CUSHION (B)

REF.NO.	PARTS NO.	DESCRIPTION
A502	28400701	CASSETTE LID AS (T2) (S)
-a	28400704	CASSETTE LID (T2) (S)
-b	28400619A	CASSETTE LID (S)
-c	28191578-1	CLEAR PLATE (S)
-d	28194344-1	COSMETIC BAR (S)
-e	28198752-1	FACET (ST1) (S)
-f	28140860	RUBBER CUSHION (S)
A502	28400703	CASSETTE LID AS (T2) (B)
-a	28400706	CASSETTE LID (T2) (B)
-b	28400619A	CASSETTE LID (B)
-c	28191578	CLEAR PLATE (B)
-d	28194344	COSMETIC BAR (B)
-e	28198752-1	FACET (ST1) (B)
-f	28140860	RUBBER CUSHION (B)
A801	28324194-1	KNOB (EJECT)
A802	28324195-1	KNOB (DOL)
⚠ F901	252075	FUSE 2.5A-SE-EAK (P)
⚠ P901	25050290	AC OUTLET NSCT-2P118T (D)
⚠ P901	25050337	AC OUTLET NSCT-2P164 (P/W)
⚠ P901	25050346	AC SOCKET NSCT-2P173 (Q)
⚠ S901	25065340	NSS-0001
⚠ S902	25065123	NSS-1258P (W)
⚠ T901	2300695	NPT-1096D (D)
⚠ T901	2300696	NPT-1096P (P)
⚠ T901	2300697	NPT-1096DG (W)
⚠ T901	2300698	NPT-1096Q (Q)
U1	1N108584-2	NAAR-4084-2
U2	1N108585-2	NAAF-4085-2
U3	1N108586-2	NAAR-4086-2
U4	1N108587-2	NADIS-4087-2
U5	1N108588-2	NADIS-4088-2
U6	1N108589-2	NASW-4089-2
U7	1N108590-2	NASW-4090-2
⚠ U8	1N108592-2	NASW-4092-2 (D)
⚠ U8	1N108592-2A	NASW-4092-2A (P)
⚠ U8	1N108592-2B	NASW-4092-2B (W/Q)
⚠ W901	253118	AC CORD AS-SAA (Q)
⚠ W901	253149	AC CORD AS-CEE (P/W)
⚠ W901	253168	AC CORD (D)
Z1	244155	CASSETTE DECK-A MECHANISM
Z2	244156	CASSETTE DECK-B MECHANISM

NOTE: (D) : Only 120V model
(P) : Only 230V model
(W) : Only Worldwide model
(S) : Silver model
(B) : Black model

NOTE:
THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PARTS NUMBER SPECIFIED.

ADJUSTMENT PROCEDURES

PRECAUTIONS

1. Before adjustment, clean the following parts with an alchol moinstend swab.
   * record/playback head
   * erase head
   * pinch roller
   * capstan
2. Do not use magnetized screwdriver for adjustments.
3. Demagnetize record/playback head with a head demagnetizer.

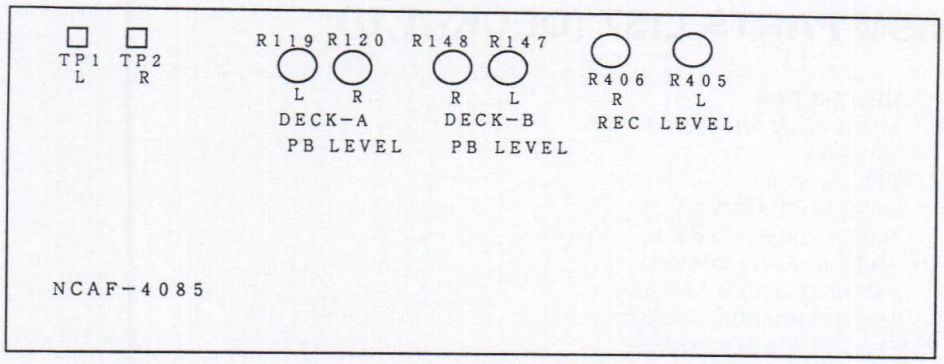
TEST EQUIPMENT/TOOLS REQUIRED:

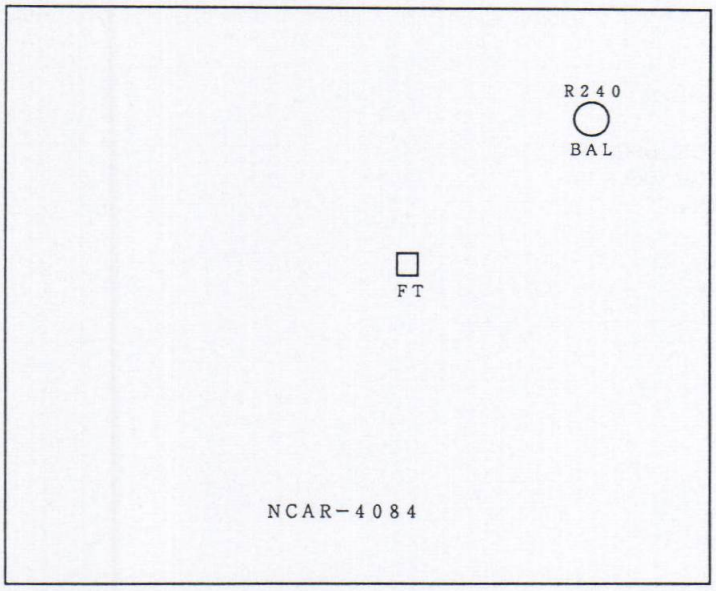
Audio oscillator
Digital frequency counter
Oscilloscope
Attenuator
AC voltmeter
Non-magnetic screw driver
Test tapes

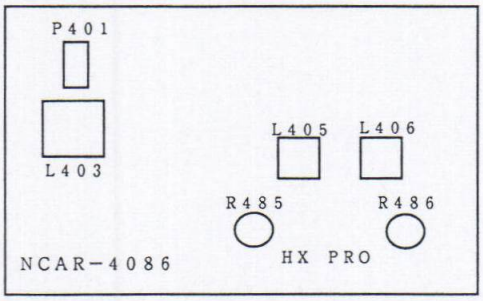
TCC-153	:	10 KHz, –15dB
MTT-111	:	3 kHz, – 0dB
MTT-150	:	Dolby level calibration 400Hz, tone 200nWb/m

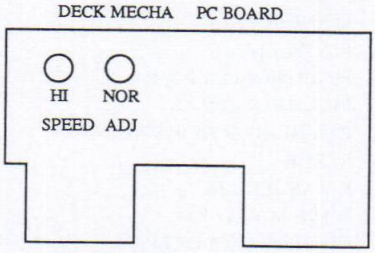
Item		Connection of instrument	Line input	Test tape	Mode	Output indicator	Adjustment point	Adjust	Remaks
1	Tape speed	Frequency counter to LINE output terminal		MTT-111	PB	Frequency counter	Semi-fixed on the mechanism P.C.B.	High speed 6000 ~ 6020Hz Normal speed T1 3045 ± 5 T2 3030 ±5	Refer to item 4-4 of page 3. High speed first
2	Head azimuth	AC voltmeter and oscilloscop e to lINE output terminal		TCC-153	PB	AC voltmeter	Head azimuth screw FWD: left REV: right	Maximum and same phase at channels L and R	fig-1
3	Play-back level	AC voltmeter to terminals TP-1 and TP-2		MTT-150	PB	AC voltmeter	T1R119 (Ch.L) R120(Ch.R) T2R147(Ch.L) R148(Ch.R)	300mV	
4	ALC balance	AC voltmeter to LINE OUT terminal	1kHz 210mV		REC/PAUSE	AC voltmeter	R240	Same level at ch. L and ch. R	
5	OSC Block	Frequency counter to P401 read loose coupling		METAL TAPE MX-C90	REC	Frequency counter	L403	85kHz ± 2kHz	
6	HX-PRO	AC voltmeter to head side of R131 R132		METAL TAPE MX-C90	REC	AC voltmeter	L-405 (Ch.L) L-406 (Ch.R)	Maximum	R485 R486 Maximum
7	Bias current	fig-2	1kHz	–20dB and 12kHz –20dB	UD-1 C-90	REC/PB	AC voltmeter	R485 (Ch.L) R486 (Ch.R)	
8	Record level	fig-2	1 kHz	UD-1 C-90	REC	AC voltmeter	Atteuntor or AF OSC output	350mV	
					REC/PB	AC voltmeter	R405 (Ch.L) R406 (Ch.R)	Same level at REC/PB	

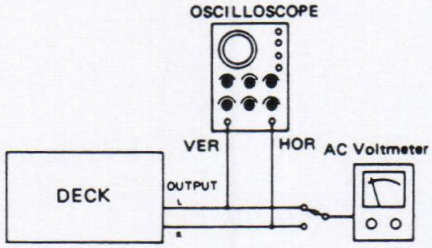
Blank tape
NORMAL UD-1 C-90
HIGH ..... XL-II C-90
METAL ..... MX C-90
PLAY torque ..... 30 ~ 70g/cm
FF.REV torque ..... 80 ~ 180g/cm
Back tension ..... 2 ~ 7g/cm

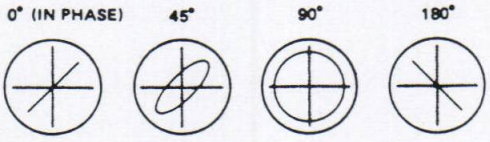












Confirming phase relationship

fig-1

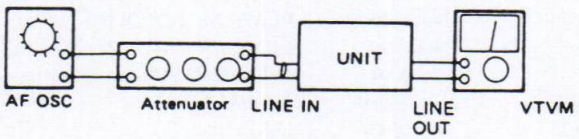
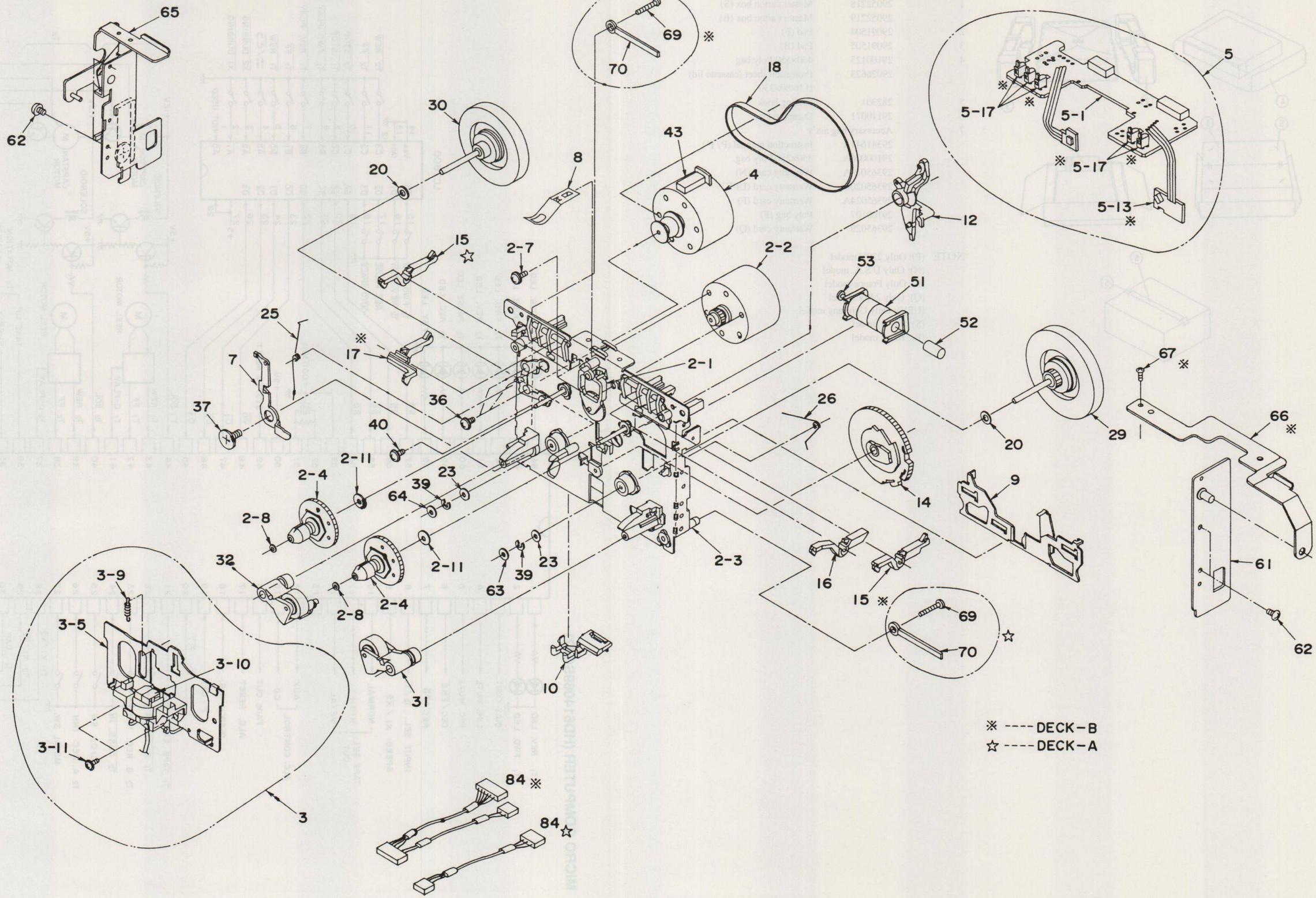


fig-2

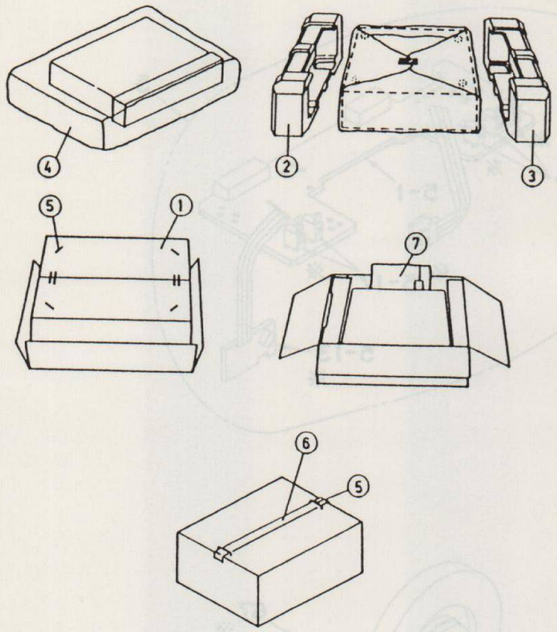
TAPE MECHNISM PARTS LIST (DECK-A,B)

REF.NO.	PARTS NO.	DESCRIPTION
2	24611494	MECHANISM CHASSIS AS
2-1	24602482	IDLER AS
2-2	24601245	REEL MOTOR
2-3	24611498	BASE AS (CHASSIS)
2-4	24602483	BASE AS (REEL) (DECK-B)
2-4	24602484	BASE AS (REEL) (DECK-A)
2-7	24609032	PAN HEAD SCREW 2.6×6.4ZN
2-8	24611177	PLASTIC WASHER 1.7×3.2×.25
2-11	24611175	PLASTIC WASHER 2.1×7×.25
3	24600087	P HEAD AS (DECK-A)
3	24611428	R/P HEAD AS (DECK-B)
3-5	24611493	BASE (HEAD)
3-9	24605711	SPRING
3-11	833120059	TAPPING SCREW 2×5ZN
4	24601252	MAIN MOTOR AS
5	24606457	P.C.B. AS (CONTROL) (DECK-A)
5	24606458	P.C.B. AS (CONTROL) (DECK-B)
5-13	24606343	PHOTO REFLECTOR
5-17	24606271	PUSH SWITCH
5-25	22240239	TA7291S (DECK-B)
5-25	22240480	TB6501P (DECK-A)
7	24607041B	ARM (PROTECT) L
8	24605739	SPRING
9	24611384A	SLIDE PLATE
10	24611385	LEAD HOLDER
12	24607116	ARM (PLAY)
14	24602485A	CAM GEAR (3R)
15	24603365A	LEVER (REC)
16	24603366	LEVER (PACK) L
17	24603367	LEVER (METAL) L
18	24602486	MAIN BELT
20	24611041	PLASTIC WASHER 2.6×0.25
23	24610841	PLASTIC WASHER 2.6×4.7×.5
25	24605714	SPRING
26	24605716	SPRING
29	24602487	FLYWHEEL AS
30	24602528	FLYWHEEL AS
31	24602414C	PINCH ROLLER AS (R)
32	24602421C	PINCH ROLLER AS
36	24609001	PAN HEAD SCREW SW2.6×5ZN
37	24609006A	SCREW
39	8930151	E WASHER 1.5S
40	838130080	WAVE SCREW 3×8
43	24611488	CUSHION (HOLDER)
51	24606333	SOLENOID COIL AS
52	24606332A	CORE
53	24606331	PLANGER
61	24611496	PLATE AS (HOLDER) (DECK-B)
61	24611497	HOLDER BRACKET (R) (DECK-A)
62	833126049	TAP-TIGHT SCREW 2.6TTP+4C
63	24611188A	WASHER (OIL SEAL)
64	24610844	WASHER 1.9X5X0.25
65	24611495	PLATE AS (HOLDER)
66	24607099	EJECT ARM (A)
67	82112004	PAN-HEAD SCREW 2P+4F
69	838126080	SCREW 2.6×8
70	24611323	LUG
84	24606470	WIRE CONNECTOR (P.B.) (DECK-A)
84	24606471	WIRE CONNECTOR (R/P) (DECK-B)

TAPE MECHANISM-EXPLODED VIEW (DECK-A, B)



PACKING VIEW

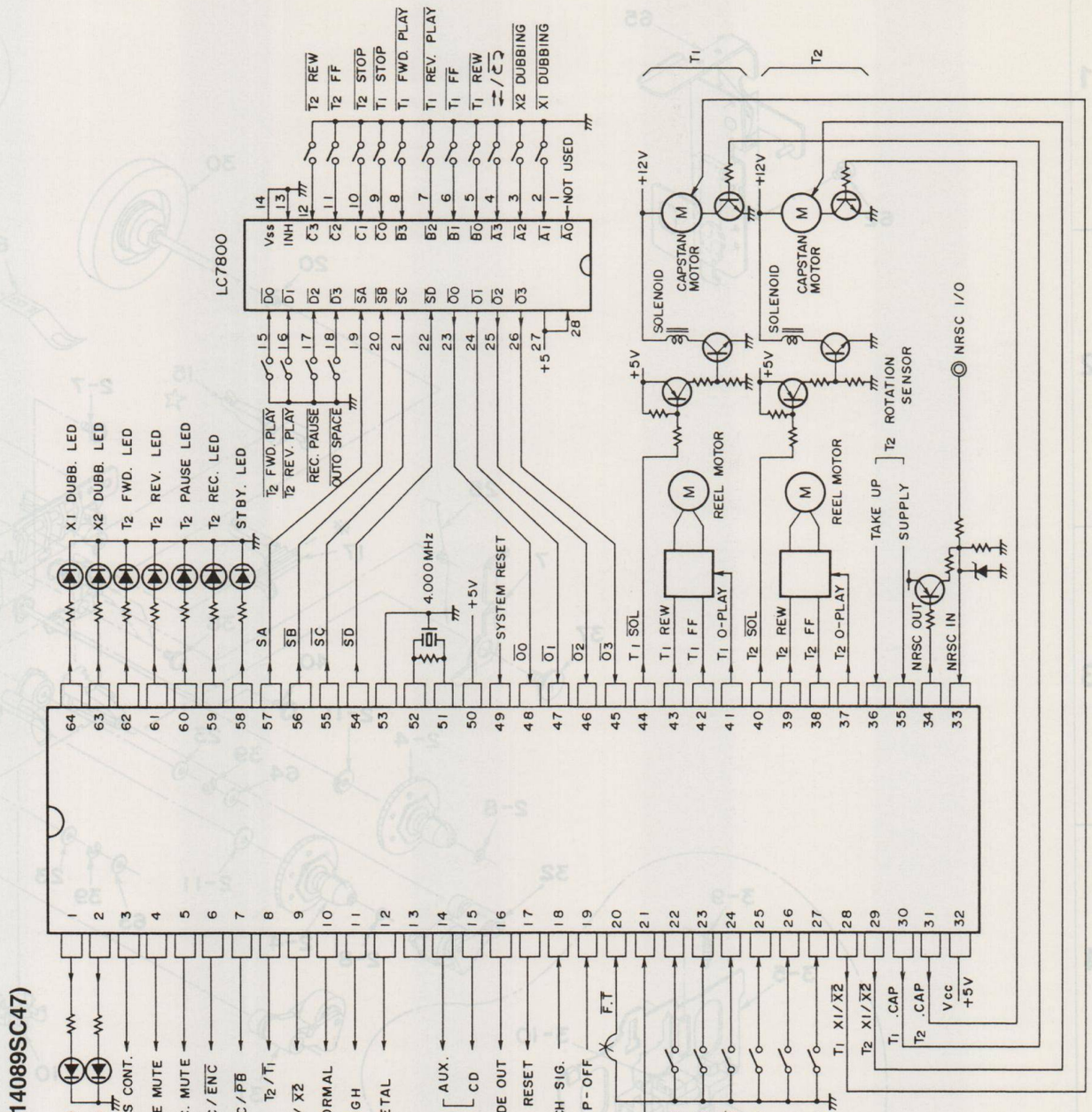


PACKING PART LIST

RFE. NO.	PART NO.	DESCRPTION
1	29052218	Master carton box (S)
	29052219	Master carton box (B)
2	29091504	Pad (F)
3	29091505	Pad (B)
4	29100123	430×550 Poly bag
	29026623	Protection sheet (cassette lid) t1.0×80×330
5	282301	Sealing hook
6	29110071	Damplon tape
7	Accessary bag ass'y	
	29341647A	Instruction manual (P / F)
	29100006A	350×250 Poly bag
	29365019A	Warranty card (N)
	29365020C	Warranty card (UPV)
	29365024A	Warranty card (F)
	29100107	Poly bag (F)
	29365029	Warranty card (Q)

NOTE (P): Only 230V model
(N): Only U.S.A. model
(F): Only France model
(Q): Only 240V model
(UPV): Only Germany model
(S): Silver model
(B): Black model

MICRO COMPUTER (HD614089SC47)



PRINTED CIRCUIT BOARD PARTS LIST

NAAR-4084-2

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	Ics	
Q201	22240368	M5218AL
Q202	22240256	M51131L
Q501	222940	BA335H
Q701	22240481	HD614089SC47
Q702	222810	LC-7800
Q901	222780075MIT	78M07L
Q902	222790085JRC	79M08
	Transistors	
Q203, Q204	2213285 or	2SC1740S-S or
	2213284	2SC1740S-R
Q205	221281 or	DTC114YS or
	2213570	RN1207
Q206	2213285 or	2SC1740S-S or
	2213284	2SC1740S-R
Q207, Q208	221281 or	DTC114YS or
	2213570	RN1207
Q209	2212600 or	DTA124ES or
	2213580	RN2203
Q601, Q602	2211706	2SD655-F
Q704, Q705	2213355 or	2SA933S-S or
	2213354	2SA933S-R
Q706	2212600 or	DTA124ES or
	2213580	RN2203
Q711, Q712	2212600 or	DTA124ES or
	2213580	RN2203
Q713, Q714	221281 or	DTC114YS or
	2213570	RN1207
Q715, Q717	2213285 or	2SC1740S-S or
	2213284	2SC1740S-R
Q716, Q718	221282	DTC144ES
Q904, Q905	2202115 or	2SD2061-E or
	2202116	2SD2061-F
Q906	2213285 or	2SC1740S-S or
	2213284	2SC1740S-R
Q907	2212853 or	2SB1068-K or
	2212855	2SB1068-U
	Diodes	
D201	225227	SLV-31VC
D701, D702	223163	1SS133
D703	224450683	MTZ6.8C
D704, D705	223163	1SS133
D706	224450562	MTZ5.6B
D708, D709	223163	1SS133
D801	223124 or	1S2473 or
	223150	US1040
D901-D906	22380032	1SR139-100
D907	224151303	05AZ13Z
	Crystal	
X701	3010150	CST4.00MGW
	Capacitors	
C115	393180477	4.7 μF50V, ELECT.
C117	393180107	1 μF50V, ELECT.
C201-C204	393141007	10μF16V, ELECT.
C207, C208	393180227	2.2 μF50V, ELECT.
C209, C210	393121017	100 μF6.3V, ELECT.
C211	393142207	22μF16V, ELECT.
C501	393180227	2.2 μF50V, ELECT.
C503	393183397	0.33μF50V, ELECT.
C504	393184797	0.47μF50V, ELECT.
C505	393141007	10μF16V, ELECT.
C701	354764709	47μF35V, ELECT.
C702	393180477	4.7 μF50V, ELECT.
C703	393180107	1 μF50V, ELECT.
C801	393180477	4.7 μF50V, ELECT.
C903, C904	393152227S	2200μF25V, ELECT.
C905, C906	393141017	100 μF16V, ELECT.
C909, C910	393141017	100 μF16V, ELECT.
C912	393141017	100 μF16V, ELECT.
C914	393154727S	4700μF25V, ELECT.
C915	393144707	47μF16V, ELECT.
C916, C917	393144707	47μF16V, ELECT.
C918	393180477	4.7 μF50V, ELECT.
C923, C924	393142217	220 μF16V, ELECT.
C929	393142217	220 μF16V, ELECT.
C930	393141007	10μF16V, ELECT.
	Resistors	
R240	5210220 or	N06HR50KBD or
	5210068	N06HR 47KBD
R701, R702	442524794F	RS1/2WBJ 0.47 Ω
R703	442524714F	RS1/2WBJ 470Ω
R716	49163392408	3.9KΩ×8, 1/10W
R718	49163392412	3.9KΩ×12, 1/10W
R719	49163392404	3.9KΩ×4, 1/10W
R901	441723304F	RS2WBJ 33 Ω
R902, R903	442520224F	RS1/2WBJ 2.2Ω
	Switch	
S201	25065414	NSS-22155
	Plugs & jack	
P201	25045165	NPJ-4PDBL59
P202	25055509	NPLG-13P484
P203	25055508	NPLG-10P483
P701, P702	25055186	NPLG-5P170
P703, P705	25055191	NPLG-10P175
	Sockets	
P706A	2002342215	NSAS-22P0214
P707A	2000758	NSAS-12P714
P708A	2000962	NSAS-6P914
P709A	2002391820	NSAS-18P0196
P710	25045172	HSJ-1003-01-020
	Miscellaneous	
	27141069	BRACKET
	27160211-1	RAD-68B, RADIATOR
	82143006	3P+6FN(BC), SCREW

NAAF-4085-2

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	Ics	
Q103, Q104	222956	NJM-2068D-D
Q109	222933 or	BU-4066BP or
	222840661	4066B
Q111	22240147	μPC1330HA
Q252	22240388	HA12142NT
Q403	22240267	CXA1198AP
Q404	222840511	4051B
	Transistors	
Q101, Q102	221299	DTC114TS
Q105-Q108	221299	DTC114TS
Q110	221281 or	DTC114YS or
	2213570	RN1207
Q251	221281 or	DTC114YS or
	2213570	RN1207
Q401, Q402	2213285 or	2SC1740S-S
	2213284	2SC1740S-R
	Coils	
L201, L202	233407	NMC-6079
L401, L402	231165	NTR-6506
	Capacitors	
C111, C112	393142217	220 μF16V, ELECT.
C139, C140	393142217	220 μF16V, ELECT.
C416	393180477	4.7 μF50V, ELECT.
C211, C212	393180227	2.2 μF50V, ELECT.
C213	393142207	22μF16V, ELECT.
C221-C224	393181097	0.1 μ50V, ELECT.
C225-C228	393180227	2.2 μF50V, ELECT.
C401, C402	393180107	1 μF50V, ELECT.
C403, C404	393180477	4.7 μF50V, ELECT.
C407, C408	393180477	4.7 μF50V, ELECT.
C419	393180477	4.7 μF50V, ELECT.
C921, C922	393144717	470 μF16V, ELECT.
C925, C926	393141017	100 μF16V, ELECT.
	Resistors	
R119, R120	5210244	N06HR47KBE
R147, R148	5210244	N06HR47KBE
R405, R406	5210240	N06HR10KBE
	Plug	
P101	25055123	NPLG-3P117
P102	25055136	NPLG-5P120

NAAR-4086-2

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	Ic	
Q412	222959	μPC1297CA
Q405	2212853 or	2SB1068-K or
	2212855	2SB1068-U
Q406-Q408	221281 or	DTC114YS or
	2213570	RN1207
Q409, Q410	2211544	2SC1959-Y
Q411	2213170	2SD1809
	Coil	
L403	231063	NLO-2037
L405, L406	231127	NCH-4183
	Capacitors	
C413	393122217	220 μF6.3V, ELECT.
C415	393180477	4.7 μF50V, ELECT.
C418	370131234	0.012 μF100V, APS
C422	393144707	47μF16V, ELECT.
C423, C424	370131214	120PF100V, APS
C425, C426	370131014	100PF 100V, APS
C435	393141007	10μF16V, ELECT.
C436	393180227	2.2 μF50V, ELECT.
	Resistors	
R477	442525604F	RS1/2WBJ 56 Ω
R485, R486	5210217	N06HR10KBD
	Plug	
P401	25055132	NPLG-2P116
	Socket	
JL402	25050267	NSCT-3P95

NADIS-4087-2

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	LED	
D731, D732	225141	SEL2213C
D733, D734	225137CG,	SEL2413E-CG,
	225137DG or	SEL2413E-DG or
	225137DY	SEL2413E-DY
	Socket	
P701A	2000776	NSAS-10P732
	Holder	
	27190815	HOLDER(LED4)

NADIS-4088-2

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	LED	
D735, D736	225141	SEL2213C
D737, D738	225137CG,	SEL2413E-CG,
	225137DG or	SEL2413E-DG or
	225137DY	SEL2413E-DY
	Socket	
P702A	2000926	NSAS-10P879
	Holder	
	27190815	HOLDER(LED4)

NASW-4089-2

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	LED	
D739	225141	SEL2213C
	Switch	
S701-S705	25035570	NPS-111-S532
	Socket	
P703A	2000620	NSAS-20P576
	Holder	
	27190377	HOLDER(LED)

NASW-4090-2

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	Switch	
S708-S716	25035570	NPS-111-S532
	Socket	
P705A	2000774	NSAS-20P730

NASW-4092-2

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	Capacitor	
C952	3500065A	0.01μF, AC400V/125V, IS

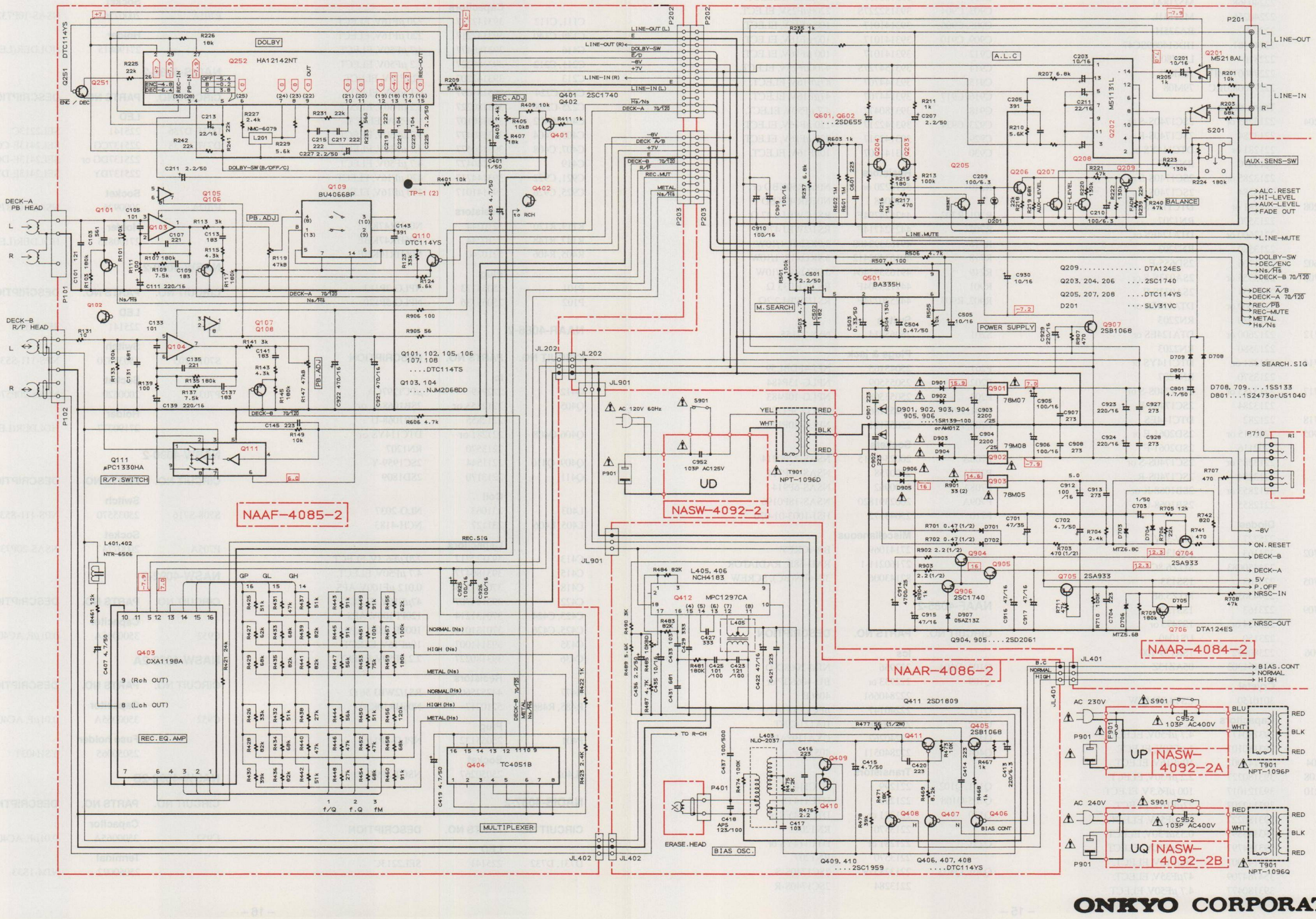
NASW-4092-2A

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	Capacitor	
C952	3500065A	0.01μF, AC400V/125V, IS
	Fuse holder	
	25050065	YSH403T

NASW-4092-2B

CIRCUIT NO.	PARTS NO.	DESCRIPTION
	Capacitor	
C952	3500065A	0.01μF, AC400V/125V, IS
	Terminal	
	25060092	NJM-1S33

SCHEMATIC DIAGRAM (1/2)



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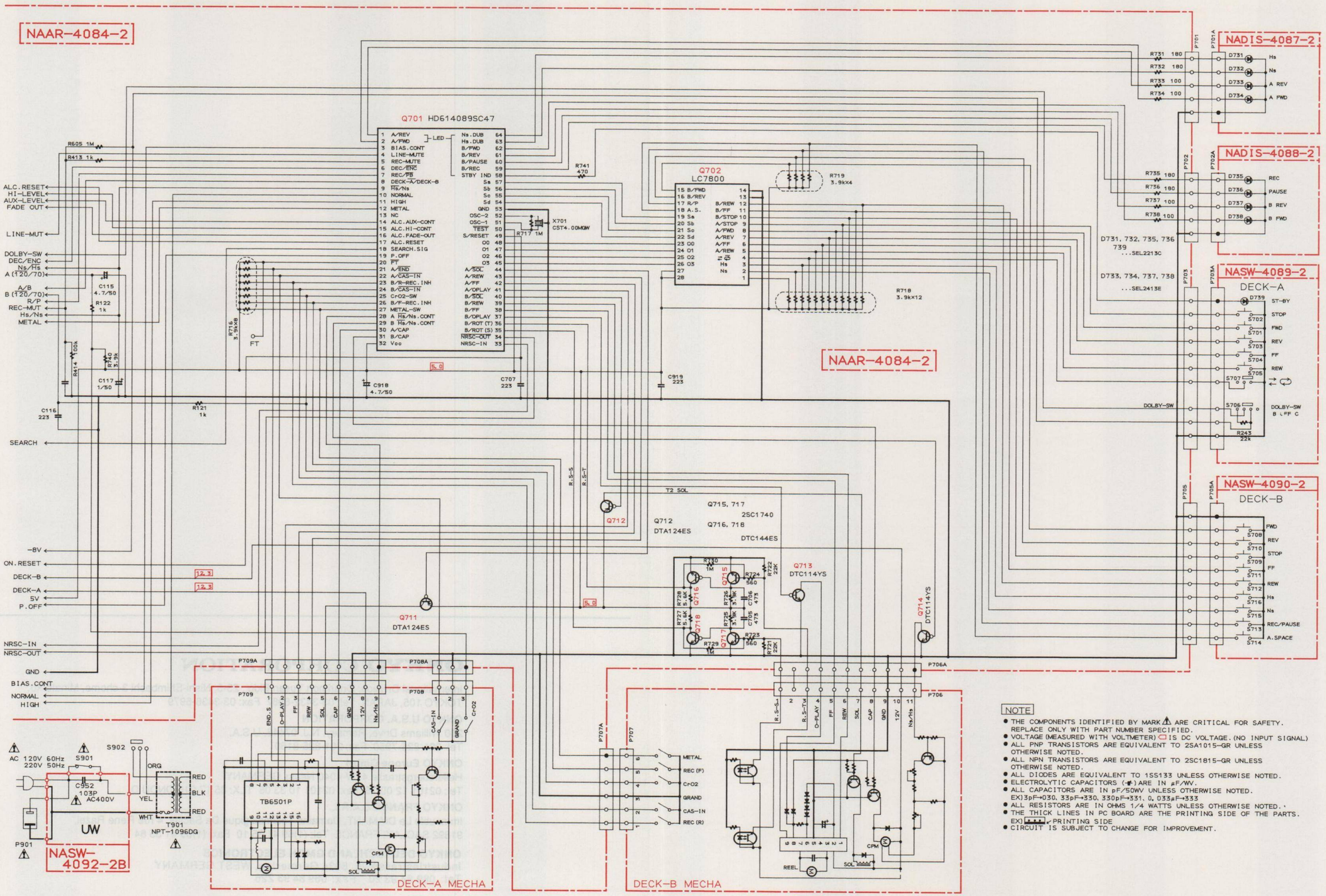
SCHEMATIC DIAGRAM (2/2)



NOTE

- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE (MEASURED WITH VOLTMETER) ⊏ IS DC VOLTAGE. (NO INPUT SIGNAL)
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR UNLESS OTHERWISE NOTED.
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS (-+) ARE IN μF/WV.
- ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED. EX) 3pF→030, 33pF→330, 330pF→331, 0.033μF→333
- ALL RESISTORS ARE IN OHMS 1/4 WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES IN PC BOARD ARE THE PRINTING SIDE OF THE PARTS. EX) ▪▪▪ : PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

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